M013f: VERTICAL HAULING LINE

TSP Number/Title	M013g: Vertical Hauling Line
Effective Date	Implement next class iteration upon receipt
Supersedes TSP(s)/Lessons	None
TSP User	The following courses use this TSP: Summer Instructor Qualification Course Basic Military Mountaineering Course Assault Climbers' Course
Proponent	United States Army Alaska, Northern Warfare Training Center
Improvement Comments	Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: ATTN: TRAINING ADMINISTRATOR COMMANDANT USARAK NWTC 1060 GAFFNEY ROAD #9900 FORT WAINWRIGHT AK 99703-9900
Security Clearance/Access	Public domain
Foreign Disclosure Restrictions	The Lesson Developer in coordination with the USARAK NWTC foreign disclosure authority has reviewed this lesson. This lesson is releasable to foreign military students from all requesting foreign countries with Approval of Commandant USARAK NWTC.

Purpose

This training support package provides the instructor with a standardized lesson plan for presenting instruction for:

Task Number	Task Title
VII.0807	Vertical Hauling Line

Technique of Delivery

Lesson Number	Instructional Strategy	Media
M013f	Class and Practical Exercise	None

This TSP contains

Table of Contents		Page
Lesson	Section I, Administrative Data	3
	Section II, Introduction	5
	TLO: Demonstrate establishment, utilization and recovery of a vertical hauling line	5
	Section III, Presentation	6
	ELO A: Install a vertical haul line	6
	ELO B: Prepare personnel/equipment for movement on a vertical haul line	8
	ELO C: Move personnel/equipment on a vertical haul line	8
	ELO D: Recover a vertical hauling line	8
	Section IV, Summary	10
	Section V Student Evaluation	11

SECTION I **ADMINISTRATIVE DATA**

All courses including this lesson

Course Number	Course Title
NA	Mountain Instructor Qualification Course
NA	Basic Mountaineering Course
NA	Assault Climber Course

Task(s) Taught or Supported

Task Number	Task Title
VIII.0807.01	Install a vertical haul line
VIII.0807.02	Prepare personnel/equipment for movement on a vertical haul line
VIII.0807.03	Move personnel/equipment on a vertical haul line
VIII.0807.04	Recover a vertical haul line

Task(s) Reinforced

Task Number	Task Title
VI.0200	Risk Management for Mountain Operations
VIII.0100	Mountain Travel and Walking Techniques
VIII.0200	Mountaineering Equipment
VIII.0300	Rope Management and Knots
VIII.0400	Anchors
VIII.0600	Belay Techniques
VIII.0700	Roped Climbing
VIII.0805	Rope Installations (A-frame)

Test Lesson Number

Hours	Lesson Number	Lesson Title
	M020	BMC Review

Prerequisite Lesson(s)

-M005, Risk Management for Mountain Operations,
-M006, Mountain Travel and Walking Techniques, VIII.0100.10;
-M007, Mountaineering Equipment, VIII.0200.01, VIII.0200.03;
-M008, Rope Management and Knots, VIII.0300.01, VIII.0300.04, VIII.0300.07, VIII.0300.08, VIII.0300.09, VIII.0300.11, VIII.0300.15, VIII.0300.16, VIII.0300.21, VIII.0300.22;
-M009, Anchors, VIII.0400.01, VIII.0400.02, VIII.0400.03, VIII.0400.04;
-M011, Belay Techniques, VIII.0600.01, VIII.0600.02, VIII.0600.03, VIII.0600.04, VIII.0600.05, VIII.0600.06;
-M012, Roped Climbing, VIII.0700.
-M017, Rope Installations (A-frame), VIII.0805.01, VIII.0805.02;
-M011, Belay Techniques, VIII.0600.01, VIII.0600.03, VIII.0600.04, VIII.0600.05
-M013, Rope Installations (Fixed Rope), VIII.801.01, VIII.801.01, VIII.801.02, VIII.801.03

References

Number	Title	Date	Additional Information
FM 3-97.6	Mountain Operations	NOV 00	
FM 3-97.61	Military Mountaineering	AUG 02	
NA	USARAK NWTC Mountain Operations Manual	FY 2003	
NA	Risk Management for Mountain Operations	FY 2003	

Student Study Assignment Read TSP M013g

Instructor Requirements MIQC graduate, TAITC graduate

Additional None

Support Personnel Requirements	
Equipment Required	Instructor Equipment: • 2 climbing ropes (static) • sling ropes 3 minimum • 4 carabineers • A-frame poles- strong enough to support the load. • Helmet Student Equipment: • 2 climbing ropes (static) • sling ropes 3 minimum • 4 carabineers • A-frame poles- strong enough to support the load. • Helmet • Pen and notepad
Materials Required	Instructor Materials: • NWTC Mountain Operations Manual • Risk Management Guide for Mountain Operations Student Materials: • Risk Management Guide for Mountain Operations • NWTC Mountain Operations Manual
Classroom, Training Area and Range Requirements	Mountaineering training area large enough to facilitate 6 students and a SGL. Training area must have adequate loading and unloading platforms as well as natural anchors near the top of the site, to facilitate simultaneous installation of 2 vertical haul lines.
Ammunition Requirements	None
Instructional Guidance	Before presenting this lesson, instructors must thoroughly prepare by studying this lesson and identified reference material.

Branch Safety Manager Approval

NAME	Rank	Position	Date
Mark Gilbertson	**GS-09**	**Training Specialist**	

Proponent Lesson Plan Approvals

NAME	Rank	Position	Date
Peter Smith	**GS-12**	**Training Administrator**	

M013f: VERTICAL HAULING LINE

SECTION II **INTRODUCTION**

Method of instruction: Small Group
Type of instruction: Class
Instructor to student ratio: 1:8
Time of instruction: 2 ¼ Hours
Media used: None

Motivator

Operations in mountainous terrain will include movement through and up to 4th Class terrain. The movement of inexperienced personnel or ungainly equipment loads may make movement through some Class 5 terrain very difficult, hazardous or even impossible without an installation to aid the ascent/descent. The vertical haul line provides a relatively quick and safe method to conquer Class 5 terrain

Terminal Learning Objective

ACTION:	Demonstrate establishment, utilization and recovery of a vertical hauling line
CONDITION:	In a field environment given suitable 4th or 5th class terrain, with adequate loading and unloading platforms, a suitable natural anchor at the unloading platform, an A-frame, carabineers (2-6 as needed), climbing ropes (minimum 3 ropes length as needed), sling ropes (2)
STANDARD:	Demonstrate establishment, utilization and recovery of a vertical hauling line IAW the NWTC Mountain Operations Manual.

Safety Requirements

Ensure that students:

- Receive a risk assessment prior to movement to the training area and before practical exercises.
- Wear helmets during and exercise caution throughout the PE.
- Have all necessary equipment for the PE's, to include any addition-al equipment required by the NWTC SOP.
- Have two full canteens and drink adequate water to avoid becoming dehydrated.
- Receive a briefing on the symptoms of heat injury or cold weather injury as appropriate.
- Establish an SOP for treatment and/or evacuation of injured soldiers.

Risk Assessment Level

Determined by instructor

Environmental Considerations

None

Evaluation

You will be evaluated on this task during the Mountain Stakes portion of training as per the NWTC training schedule for this course.

Instructional Lead-in

Moving personnel and equipment over exposed terrain is a difficult task. You have learned about the suspension traversed and now you will learn about the vertical haul line. This is another way to assist to

get personnel and equipment over difficult terrain. The vertical haul line is used in conjunction with the fixed rope.

SECTION III **PRESENTATION**

ELO A

ACTION:	Install a vertical haul line
CONDITION:	In a field environment given suitable 4th or 5th class terrain, with adequate loading and unloading platforms, a suitable natural anchor at the top platform, an A-frame, carabineers (2-6 as needed), climbing ropes (minimum 3 ropes length as needed), sling ropes (2).
STANDARD:	Install a vertical haul line IAW the NWTC Mountain Operations Manual

Learning Step Activity 1 - Installing a Vertical Haul Line

a. Reconnaissance of the route will allow a leader to foresee most Class 5 terrain. However, not all maps may show areas difficult but necessary for movement. Therefore, leaders must be familiar with and prepared to utilize the vertical haul line capabilities.

b. Site selection is very important after you determine that you must use the vertical haul line. Items that must be available on the site include:

1. Suitable loading and unloading platforms. For ascension or descending, a suitable loading platform should have enough space for 2-3 personnel to pull on the rope to haul personnel/equipment up or down the terrain, while an unloading platform will allow enough space for an A-frame and 2-3 personnel to assist in hauling and unloading.

2. An A-Frame is constructed, reference Task VIII.0805 (Rope Installations, A-Frame).

3. A “bomb-proof” anchor at the top of the loading platform, reference Task VIII.0400 (Anchors).

4. Due to the complexity of the installation and the high visibility it produces, install out of range of direct enemy fire if possible.

Keep in mind that the route to access the top platform and A-frame must be within the experience level of at least three climbers in your unit.

c. After selecting a suitable site, begin installation at the top platform with the A-frame.

1. Find the center of a static rope and lay it over the apex of the A-frame so a 12 inch bight is formed and hanging on the downhill side of the apex.

2. Maintaining the bight, tie a clove hitch on each leg of the A-frame above the apex. The two ends of the rope will extend on the opposite side of the A-frame toward an anchor.

3. The parallel ends of the rope are then tied to a “bomb-proof” anchor using a transport tightening system.

4. Tighten the anchoring rope to ensure that when under load, the A-frame is at a 45-degree angle over the downhill side. Good footings are essential for the A-frame in this installation.

5. Attach either two opposite and opposed carabiners or a carabiner/ pulley though the bight hanging from the A-frame.

6. Throw a rope to haul the load to the bottom. Insert the rope into the carabiner/pulley.

7. With the other end of the rope, construct a Z pulley on the anchor.

8. Once the Z pulley is installed, attach the load to the rope and begin raising.

d. A belay system (reference Task VIII.0600.01-.06 belays) can be installed if desired. A bowline will be tied on one end of a belay rope. The rope coming from the top can utilize the same anchor as the Z pulley but will be independent. The belay rope will then be attached to the haul line by carabiners to the same bight as the primary haul line. To facilitate movement in either direction, one belay will be from the top of the installation, the other from the bottom.

ELO B

ACTION:	Prepare personnel/equipment for movement on a vertical haul line.
CONDITION:	Given one assembled vertical haul line, carabineer and seat harness for personnel. Any necessary carabineers/webbing for equipment (as needed).
STANDARD:	Prepare personnel/equipment for movement on a vertical haul line IAW the NWTC Mountain Operations Manual.

Learning Step/ Activity 1- Preparing Personnel and Equipment for Movement on a Vertical Haul Line

Prepare men and equipment for the vertical haul line as far in advance as feasible. Final preparations will be done in the security perimeter before loading the haul line.

For equipment:

a. Ensure that the equipment will be securely fastened to the haul line, i.e. carabineer through the top of the rucksack frame, attached to the haul line figure eight loop. Each piece of equipment will be different and rigging must be carefully inspected.

b. All equipment must be secure with nothing dangling, to avoid getting caught on rocks, trees and other obstacles.

For personnel:

a. Personnel must wear a harness (Task VIII.0700.03) with a carabineer securely fastened. Carabiner will attach to one of the figure eight loops on the haul line.

b. Ensure that all personal equipment/clothing is secured before ascension.

ELO C

ACTION:	Move personnel/equipment on a vertical haul line
CONDITION:	Given an installed vertical haul line, prepared personnel/equipment, 2-3 personnel for hauling, 2 belay personnel (if necessary).
STANDARD:	Move personnel/equipment on a vertical haul line IAW the NWTC Mountain Operations Manual.

Learning Step /Activity 1- Moving Personnel and Equipment on a Vertical Haul Line

a. When hauling personnel and equipment, 2-3 personnel (or as many as necessary) will pull on the haul line. Two anchored personnel must be stationed at the top platform, to help load/unload personnel and equipment through the legs of the A-frame

b. As one person/item is hauled to the top, the remaining figure eight loop is on its way back down. After loading the second figure of eight, the direction of pull on the haul line is reversed, and the newly loaded figure of eight is hauled.

c. If personnel are being hauled, extra care is necessary in the form of a belay on top and bottom attached to one figure of eight. Additionally a knotted hand line should be provided near the top to allow personnel to climb at the end if necessary.

ELO D

ACTION:	Recover a vertical haul line.
CONDITION:	Given an installed vertical haul line.
STANDARD:	Recover a vertical haul line IAW the NWTC Mountain Operations Manual..

Learning Step/ Activity 1- Recovering a Vertical Haul Line

a. When all personnel and equipment are at the top, recover all materials used for the vertical hauling line and A-frame.

SECTION IV **SUMMARY**

Check on Learning

a. Why should loose items be tied down and secured?
To avoid snagging on obstacles during ascension

b. What additional safety measure are used when hauling personnel?
Top and bottom belay.

Review and Summarize Lesson

ACTION:	Demonstrate establishment, utilization and recovery of a vertical hauling line
CONDITION:	In a field environment given suitable 4th or 5th class terrain, with adequate loading and unloading platforms, a suitable natural anchor at the unloading platform, an A-frame, carabiners (2-6 as needed), climbing ropes (minimum 3 ropes length as needed), sling ropes (2)
STANDARD:	Demonstrate establishment, utilization and recovery of a vertical hauling line.

Transition to next lesson

As per NWTC training schedule; dependant upon course in conduct.

SECTION V	STUDENT EVALUATION
Testing Requirements	**Students will be tested on this task during the Mountain Stakes portion of training as per the NWTC training schedule for this course.**
Feedback Requirement	**Students will receive two opportunities to pass each event tested. Re-training will be conducted for students that fail the first iteration of testing. Refer to M020 for specifics.**